

CLAIMS

1. (currently amended) A method for reducing spurious emissions in an amplified signal,
2 comprising the steps of:

3 (a) receiving an input signal; and

4 (b) applying frequency-dependent phase pre-distortion to the input signal to generate a pre-
5 distorted output signal, wherein the frequency-dependent phase pre-distortion is based on at least one
6 corresponding phase difference between at least one pair of critical frequencies, such that, when the pre-
7 distorted output signal is applied to an amplifier to generate the amplified signal, the frequency-
8 dependent phase pre-distortion reduces spurious emissions in the amplified signal.

1. 2. (original) The invention of claim 1, wherein step (b) comprises the steps of:

2 (1) generating a main output signal from the input signal;

3 (2) generating one or more frequency-dependent phase pre-distortion signals from the input
4 signal; and

5 (3) advancing or delaying each frequency-dependent phase pre-distortion signal relative to
6 the main output signal; and

7 (4) combining each advanced or delayed frequency-dependent phase pre-distortion signal
8 with the main output signal to generate the pre-distorted output signal.

1. 3. (original) The invention of claim 2, wherein step (b)(1) comprises the step of applying
2 frequency-independent magnitude and phase pre-distortion to the input signal to generate the main
3 output signal.

1. 4. (original) The invention of claim 2, wherein each frequency-dependent phase pre-
2 distortion signal is based on a corresponding phase difference between a pair of critical frequencies.

1. 5. (original) The invention of claim 4, wherein step (b)(3) comprises the step of advancing
2 or delaying each frequency-dependent phase pre-distortion signal relative to the main output signal based
3 on the frequency difference between the corresponding pair of critical frequencies.

1. 6. (original) The invention of claim 4, wherein step (b)(2) comprises the step of generating
2 two or more different frequency-dependent phase pre-distortion signals from the input signal based on
3 two or more different pairs of critical frequencies.

1. 7. (original) The invention of claim 1, wherein the input signal is a baseband signal and the
2 frequency-dependent phase pre-distortion is applied in the baseband domain.

1. 8. (original) The invention of claim 1, wherein the input signal is an RF signal and the
2 frequency-dependent phase pre-distortion is applied in the RF domain.

1. 9. (original) The invention of claim 1, wherein the frequency-dependent phase pre-
2 distortion is based on data retrieved from one or more look-up tables.

1. 10. (original) The invention of claim 9, wherein the one or more look-up tables are
2 adaptively updated according to control signals generated based on the amplified signal.

1 11. (original) The invention of claim 1, wherein:
2 step (b) comprises the steps of:
3 (1) applying frequency-independent magnitude and phase pre-distortion to the input
4 signal to generate a main output signal;
5 (2) generating one or more frequency-dependent phase pre-distortion signals from
6 the input signal, wherein each frequency-dependent phase pre-distortion signal is advanced or delayed
7 relative to the main output signal based on the frequency difference between the corresponding pair of
8 critical frequencies; and
9 (3) advancing or delaying each frequency-dependent phase pre-distortion signal
10 relative to the main output signal; and
11 (4) combining each advanced or delayed frequency-dependent phase pre-distortion
12 signal with the main output signal to generate the pre-distorted output signal;
13 each frequency-dependent phase pre-distortion signal is based on a corresponding phase
14 difference between a pair of critical frequencies;
15 the frequency-dependent phase pre-distortion is based on data retrieved from one or more look-
16 up tables, wherein the one or more look-up tables are adaptively updated according to control signals
17 generated based on the amplified signal

1 12. (original) The invention of claim 11, wherein step (b)(2) comprises the step of
2 generating two or more different frequency-dependent phase pre-distortion signals from the input signal
3 based on two or more different pairs of critical frequencies.

1 13. (original) The invention of claim 11, wherein the input signal is a baseband signal and
2 the frequency-dependent phase pre-distortion is applied in the baseband domain.

1 14. (original) The invention of claim 11, wherein the input signal is an RF signal and the
2 frequency-dependent phase pre-distortion is applied in the RF domain.

1 15. (currently amended) An apparatus for reducing spurious emissions in an amplified
2 signal, wherein the apparatus is configured to:
3 (a) receive an input signal; and
4 (b) apply frequency-dependent phase pre-distortion to the input signal to generate a pre-
5 distorted output signal, wherein the frequency-dependent phase pre-distortion is based on at least one
6 corresponding phase difference between at least one pair of critical frequencies, such that, when the pre-
7 distorted output signal is applied to an amplifier to generate the amplified signal, the frequency-
8 dependent phase pre-distortion reduces spurious emissions in the amplified signal.

1 16. (original) The invention of claim 15, wherein the apparatus comprises:
2 (a) a main signal processing path configured to generate a main output signal from the input
3 signal;
4 (b) one or more frequency-dependent phase pre-distortion paths configured to generate one
5 or more frequency-dependent phase pre-distortion signals from the input signal;
6 (c) one or more delay blocks configured to advance or delay each frequency-dependent
7 phase pre-distortion signal relative to the main output signal; and
8 (4) a combiner configured to combine each advanced or delayed frequency-dependent phase
9 pre-distortion signal with the main output signal to generate the pre-distorted output signal.

1 17. (original) The invention of claim 16, wherein the main signal processing path is
2 configured to apply frequency-independent magnitude and phase pre-distortion to the input signal to
3 generate the main output signal.

1 18. (original) The invention of claim 16, wherein each frequency-dependent phase pre-
2 distortion signal is based on a corresponding phase difference between a pair of critical frequencies.

1 19. (original) The invention of claim 18, wherein the one or more delay blocks advance or
2 delay each frequency-dependent phase pre-distortion signal relative to the main output signal based on
3 the frequency difference between the corresponding pair of critical frequencies.

1 20. (original) The invention of claim 18, comprising two or more frequency-dependent
2 phase pre-distortion paths configured to generate two or more different frequency-dependent phase pre-
3 distortion signals from the input signal based on two or more different pairs of critical frequencies.

1 21. (original) The invention of claim 15, wherein the input signal is a baseband signal and
2 the apparatus applies the frequency-dependent phase pre-distortion in the baseband domain.

1 22. (original) The invention of claim 15, wherein the input signal is an RF signal and the
2 apparatus applies the frequency-dependent phase pre-distortion in the RF domain.

1 23. (original) The invention of claim 15, wherein the apparatus retrieves data for the
2 frequency-dependent phase pre-distortion from one or more look-up tables.

1 24. (original) The invention of claim 23, wherein the apparatus adaptively updates the one
2 or more look-up tables according to control signals generated based on the amplified signal.

3 25. (currently amended) A machine-readable medium, having encoded thereon program
4 code, wherein, when the program code is executed by a machine, the machine implements a method for
5 reducing spurious emissions in an amplified signal, comprising the steps of:

6 (a) receiving an input signal; and
7 (b) applying frequency-dependent phase pre-distortion to the input signal to generate a pre-
8 distorted output signal, wherein the frequency-dependent phase pre-distortion is based on at least one
9 corresponding phase difference between at least one pair of critical frequencies, such that, when the pre-
10 distorted output signal is applied to an amplifier to generate the amplified signal, the frequency-
11 dependent phase pre-distortion reduces spurious emissions in the amplified signal.

1 26. (new) A method for reducing spurious emissions in an amplified signal, comprising the
2 steps of:

3 (a) receiving an input signal; and
4 (b) applying frequency-dependent phase pre-distortion to the input signal to generate a pre-
5 distorted output signal, such that, when the pre-distorted output signal is applied to an amplifier to
6 generate the amplified signal, the frequency-dependent phase pre-distortion reduces spurious emissions
7 in the amplified signal, wherein step (b) comprises the steps of:

8 (1) applying frequency-independent magnitude and phase pre-distortion to the input
9 signal to generate a main output signal;
10 (2) generating one or more frequency-dependent phase pre-distortion signals from
11 the input signal; and
12 (3) advancing or delaying each frequency-dependent phase pre-distortion signal
13 relative to the main output signal; and
14 (4) combining each advanced or delayed frequency-dependent phase pre-distortion
15 signal with the main output signal to generate the pre-distorted output signal.

1 27. (new) An apparatus for reducing spurious emissions in an amplified signal, wherein the
2 apparatus comprises:

3 (a) a main signal processing path configured to apply frequency-independent magnitude and
4 phase pre-distortion to the input signal to generate a main output signal;

5 (b) one or more frequency-dependent phase pre-distortion paths configured to generate one
6 or more frequency-dependent phase pre-distortion signals from the input signal;

7 (c) one or more delay blocks configured to advance or delay each frequency-dependent
8 phase pre-distortion signal relative to the main output signal; and

9 (4) a combiner configured to combine each advanced or delayed frequency-dependent phase
10 pre-distortion signal with the main output signal to generate a pre-distorted output signal, such that, when
11 the pre-distorted output signal is applied to an amplifier to generate the amplified signal, the frequency-
12 dependent phase pre-distortion reduces spurious emissions in the amplified signal.